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NOTICE OF ALLOWANCE AND FEE(S) DUE

1678 7590 12/17/2009
MARSHALL & MELHORN, LLC
FOUR SEAGATE - EIGHTH FLOOR
TOLEDO, OH 43604

EXAMINER	
YOUNG, NATASHA E	
ART UNIT	PAPER NUMBER

1797
DATE MAILED: 12/17/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,247	01/10/2007	Peter Porscha	1-17275	6160

TITLE OF INVENTION: MULTI-PHASE FLUID DISTRIBUTOR FOR A BUNDLE-TUBE REACTOR

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/17/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

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TOLEDO, OH 43604

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,247	01/10/2007	Peter Porsche	1-17275	6160
TITLE OF INVENTION: MULTI-PHASE FLUID DISTRIBUTOR FOR A BUNDLE-TUBE REACTOR				

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/17/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
YOUNG, NATASHA E	1797	422-197000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____
 Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/571,247	01/10/2007	Peter Porscha	1-17275	6160
1678	7590	12/17/2009	EXAMINER	
MARSHALL & MELHORN, LLC FOUR SEAGATE - EIGHTH FLOOR TOLEDO, OH 43604			YOUNG, NATASHA E.	
			ART UNIT	PAPER NUMBER
			1797	
DATE MAILED: 12/17/2009				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 189 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 189 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability**Application No.**

10/571,247

Examiner

NATASHA YOUNG

Applicant(s)

PORSCHA, PETER

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to request for continued examination filed on October 30, 2009.
2. ☒ The allowed claim(s) is/are 13-28.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 30, 2009 has been entered.

Allowable Subject Matter

Claims 13-28 are allowed.

The closest prior art references are Werges (US 4,067,902), Shipley (US 5,054,547), Lillie (US 470,060), and Mohr et al (US 6,066,232).

Regarding claim 13, Werges discloses a liquid distributor for two liquid phase to be distributed uniformly into a plurality of tubes of an upright tube-bundle reactor for carrying out chemical reactions, wherein the tubes are retained at the top and bottom by tubesheets and closed against the outside of the tube, and wherein a distribution chamber is arranged above the upper tubesheet, which chamber contains feed pipes for two different liquid and at least one gas phase, wherein the liquid distributor comprises:

- a first liquid distribution system (131) is arranged above a tubesheet or on it,
- which first system is connected to an least one outer feed device (128),

- a second liquid distribution system (130) is arranged above the first liquid distribution system,
- which system is connected to at least one other outer feed device (127) (see Abstract; figure 16; and column 10, lines 15-47).

Shipley et al discloses wherein a first liquid distribution system which contains a weir, installed outside the tubed area, with openings at the bottom and a plurality of inlet sleeves (26), wherein one inlet sleeve is assigned at the top to each of the tubes (24) in the tube bundle, the inlet sleeves are of tubular design and are vertically aligned, and the said sleeves have at least one lateral and one further opening (36) located above the tube sheet (16) and are open at the bottom facing each assigned tube in the tube bundle (see column 3, line 41 through column 4, line 64 and figures 1-6).

Lillie et al discloses wherein the lower distribution tray (p^2) contains a plurality of openings (g) which are arranged flush above the first liquid distribution system, and exhibits at least one device for setting a uniform liquid level above the openings, wherein the upper distribution tray (D') is connected to the feed device (v') for liquid, and contains a plurality of overflow weirs or plate holes from which the liquid is able to discharge into the lower distribution tray (p^2), and wherein each of the overflow weirs is assigned to a plurality of openings in the lower distribution tray (see page 1, line 35 through page 2, line 23 and figure 1).

Mohr et al discloses a liquid distribution system contains one upper and one lower distribution tray (see figure 2).

The prior art references do not disclose or suggest

- the second liquid distribution system contains one upper and one lower distribution tray,
- wherein the lower distribution tray of the second liquid distribution system contains a plurality of openings which are arranged flush above the inlet sleeves of the first liquid distribution system, and exhibits at least one device for setting a uniform liquid level above the openings,
- wherein the upper distribution tray is connected to the feed device for liquid, and contains a plurality of overflow weirs or plate holes from which the liquid is able to discharge into the lower distribution tray, and wherein each of the overflow weirs is assigned a plurality of openings in the lower distribution tray.

Claims 14-24 depend on claim 13.

Regarding claim 25, Werges discloses a process for two liquid phases to be uniformly distributed into a plurality of tubes of an upright tube-bundle reactor, the liquids being two liquid which cannot be mixed and which, because of their non-miscibility, cannot be premixed, wherein the liquid are introduced separately into the distribution zone such that the mixture from the feed distribution zone enters each tubular reaction zone simultaneously (see Abstract and column 10, line 15 through column 11, line 41).

The prior art reference does not disclose or suggest the liquids are introduced separately into the individual tubes of the tube bundle.

Claim 26 depends on claim 25.

Regarding claim 27, Werges discloses a method of utilizing a liquid distributor comprising: a first liquid distribution system (131) is arranged above a tubesheet or on it, which first system is connected to an least one outer feed device (128), a second liquid distribution system (130) is arranged above the first liquid distribution system, which system is connected to at least one other outer feed device (127), the method comprises uniformly distributing two immiscible liquids into a plurality of tubes of an upright tube-bundle reactor (see Abstract; figure 16; and column 10, lines 15 through column 11, line 41).

Shipley et al discloses wherein a first liquid distribution system which contains a weir, installed outside the tubed area, with openings at the bottom and a plurality of inlet sleeves (26), wherein one inlet sleeve is assigned at the top to each of the tubes (24) in the tube bundle, the inlet sleeves are of tubular design and are vertically aligned, and the said sleeves have at least one lateral and one further opening (36) located above the tube sheet (16) and are open at the bottom facing each assigned tube in the tube bundle (see column 3, line 41 through column 4, line 64 and figures 1-6).

Lillie et al discloses wherein the lower distribution tray (p^2) contains a plurality of openings (g) which are arranged flush above the first liquid distribution system, and exhibits at least one device for setting a uniform liquid level above the openings, wherein the upper distribution tray (D') is connected to the feed device (v') for liquid, and contains a plurality of overflow weirs or plate holes from which the liquid is able to discharge into the lower distribution tray (p^2), and wherein each of the overflow weirs is

assigned to a plurality of openings in the lower distribution tray (see page 1, line 35 through page 2, line 23 and figure 1).

Mohr et al discloses a liquid distribution system contains one upper and one lower distribution tray (see figure 2).

The prior art references do not disclose or suggest the second liquid distribution system contains one upper and one lower distribution tray, wherein the lower distribution tray of the second liquid distribution system contains a plurality of openings which are arranged flush above the inlet sleeves of the first liquid distribution system, and exhibits at least one device for setting a uniform liquid level above the openings, wherein the upper distribution tray is connected to the feed device for liquid, and contains a plurality of overflow weirs or plate holes from which the liquid is able to discharge into the lower distribution tray, and wherein each of the overflow weirs is assigned a plurality of openings in the lower distribution tray, the method comprising uniformly distributing two immiscible liquids into a plurality of tubes of an upright tube-bundle reactor by separately introducing the liquids into the individual tubes of the tube bundle.

Claim 28 depends on claim 27.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATASHA YOUNG whose telephone number is 571-270-3163. The examiner can normally be reached on Mon-Thurs 7:30 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. Y./
Examiner, Art Unit 1797

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797